

Name: _____

at1119paper: Complete the Square, $b = \text{odd}$ (v514)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 47x = -442$$

Add $\left(\frac{-47}{2}\right)^2$, which equals $\frac{2209}{4}$, to both sides of the equation.

$$x^2 - 47x + \frac{2209}{4} = \frac{441}{4}$$

Factor the left side.

$$\left(x + \frac{-47}{2}\right)^2 = \frac{441}{4}$$

Undo the squaring.

$$\begin{aligned} x + \frac{-47}{2} &= \frac{-21}{2} \\ x &= \frac{47 - 21}{2} \\ x &= 13 \end{aligned}$$

$$\begin{aligned} \text{or} \\ x &= \frac{-47 + 21}{2} \\ x &= 34 \end{aligned}$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 31x = -58$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 43x = -456$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 7x = 450$$